

- 39) The method of claim 6 wherein said carbon foam has a density of between about 0.3 g/cm³ and about 0.4g/cm³.
- 40) A semi-crystalline, largely isotropic, coal-based carbon foam having a thermal conductivity below about 1 W/m/^oK.
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- 41) The carbon foam of claim 1 having a density of between about 0.1 and about 0.8 g/cm³.
- 10 42) A coal-based carbon foam produced by the direct heating of comminuted coal particles in a pressure controlled mold and under a non-oxidizing atmosphere to a temperature ranging from about 300^o C to about 700^o C.
- 15 43) A method for producing carbon foam comprising directly heating comminuted coal particles in a pressure controlled mold to a temperature ranging from about 300^o C to about 700^o C.
- 44) A method for producing a coal-based carbon foam comprising:
- 20 A) comminuting coal containing adequate volatiles to permit foaming thereof upon the application of heat, to a small particle size to form a ground coal;
- B) placing said ground coal into a mold;

- C) heating said ground coal in said mold under a non-oxidizing atmosphere to a temperature and for a period adequate to produce a controlled foaming of said coal to form a preform; and
- D) controllably cooling said preform.

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